



A New Way To Maximize Your Yields.

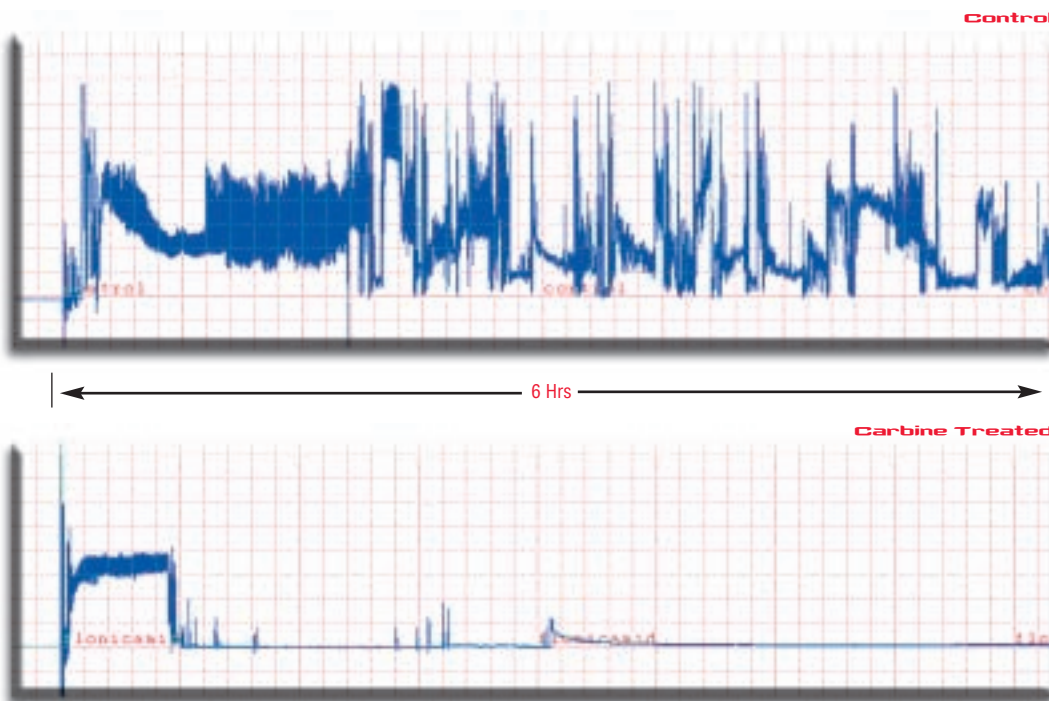
Introducing Carbine™ – The ideal pest control method to increase yield.

Unlike traditional insecticides which directly knockdown the insect, Carbine™ insecticide quickly stops plant bug and aphid feeding. The reduction in feeding leads to greater square retention and thus higher yields. Carbine stops aphid and plant bug feeding within one hour of exposure. Once feeding stops, these insects no longer cause any harm to the crop and quickly starve. Carbine offers more than the traditional crop insecticide. Carbine is truly a Crop Protection Product.



A small electrode is attached to a Lygus for electrical feeding monitoring.

Research shows that *Lygus sp.* exposed to Carbine-treated plant material fed an average 20 minutes compared to 2 hours for *Lygus sp.* feeding on an untreated plant. This cessation of feeding resulted in an 86 percent reduction of plant damage. Research trials also show that this reduction in feeding, and subsequent plant damage, resulted in yield increases as high as 572 pounds more cotton per acre than untreated fields.



The Lygus and the plant material both carry electrodes. As the Lygus inserts its stylet into the plant tissue, the electrical current is completed and registered by the computer. Wave form patterns show how quickly Carbine works to stop stylet insertions.

What would be the ideal insecticide for cotton?

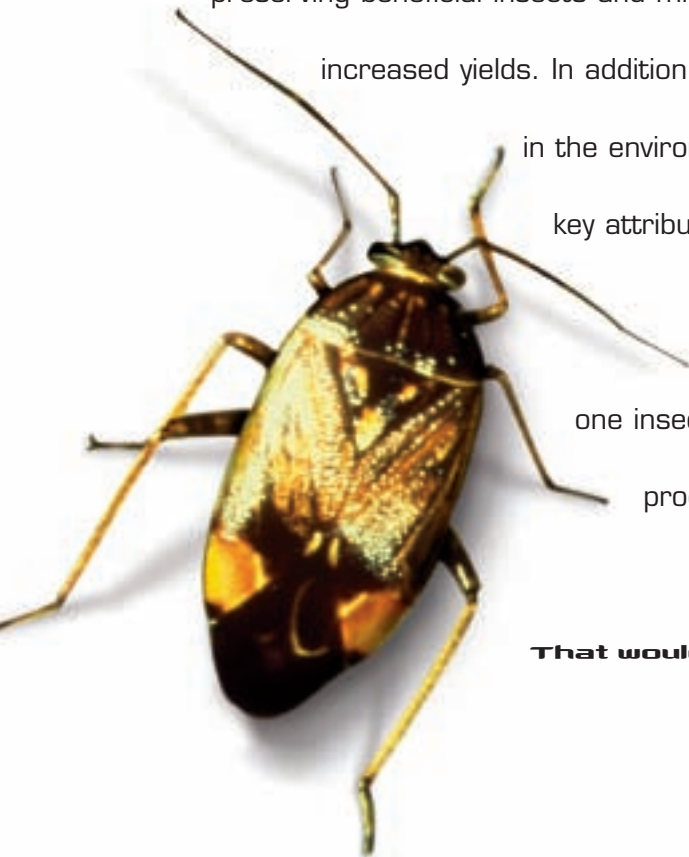
The goal of your insecticide application is to protect your cotton crop and increase yields. Traditionally, insecticide performance has been based on the elimination of the targeted pest. But if we shift our focus to protecting the crop and increasing yields, instead of just the death of the insect, we arrive at a new way of thinking about pest control. Changing the behavior of the insect so that it does not reduce yields or quality can be more effective than focusing on killing the insect pest. When feeding damage is stopped, the immediate death of the insect pest becomes irrelevant.

**This reduction
in feeding
resulted
in yield
increases as
high as 572 lbs.
more cotton
per acre
than untreated
fields.**

The ideal insecticide would stop specific target pests from feeding on your crop, while preserving beneficial insects and mites, allowing for a reduction in overall insecticide use and increased yields. In addition, lack of cross-resistance, low-use rate, short persistence in the environment, and favorable toxicological profile would be its key attributes.

Now what if you could get all those features together in one insecticide? That would definitely be the ideal crop protection product, the ideal pest control for cotton.

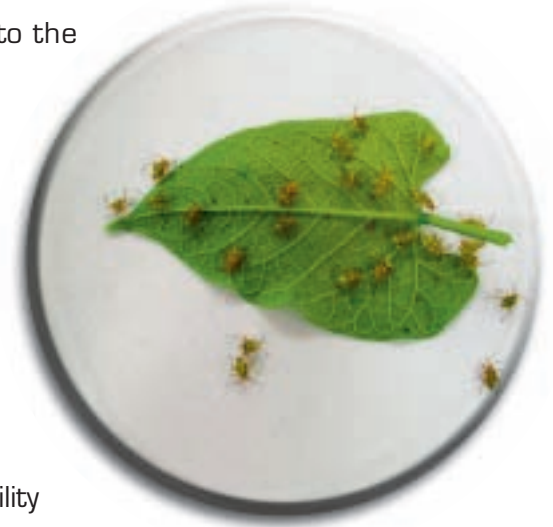
That would be **Carbine™** insecticide from FMC.



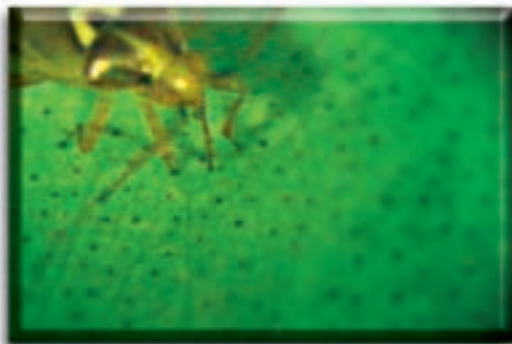


A new, unique mode of action.

Carbine™ insecticide has a unique mode of action named A-Type Potassium Channel Active. Once the target insect is exposed to Carbine, the active ingredient, flonicamid, quickly moves into the insect and blocks the potassium channel of the insect nervous system. This causes an uncontrolled release of neurotransmitters resulting in a loss of nervous system control. This can be readily observed in plant bugs and aphids. The affected insects develop characteristic shaking, difficulty in coordinated movement, and most importantly, they lose the ability to feed, which is irreversible.



Plant bugs on untreated leaf.



Plant bug pierces untreated plant tissue with stylus to feed.

A key component of Insect Resistance Management programs.

Carbine can play an important role in helping manage insect resistance (IRM). The unique mode of action of Carbine means that Carbine is an excellent choice for IRM programs.

The lack of cross-resistance with other insecticide classes means that the

inclusion of Carbine in a crop protection program will reduce the resistance selection pressure on the other insecticide.



Plant bug exposed to Carbine can no longer insert stylus into plant tissue.

The perfect partner in Integrated Pest Management programs.

Carbine™ insecticide is virtually non-toxic to beneficial insects and mites. Carbine has little to no impact on mites, bees, predatory and parasitic insects such as lady beetles, lacewings,



Plant bugs exposed to Carbine stop feeding and abandon leaf.

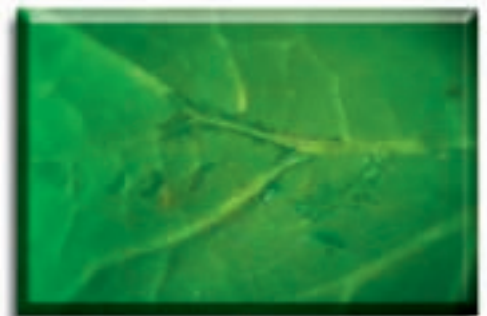
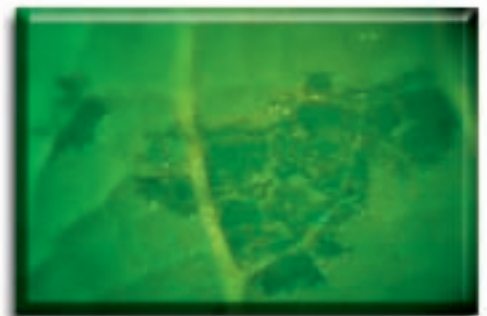
parasitic wasps, etc. Consequently, the use of Carbine permits these insects to help control any *Lygus* or aphids that have escaped treatment as well as other cotton pests such as heliothines, armyworms, loopers, etc.

The highly-effective pest control with an excellent environmental profile.

Carbine is easy on the environment and non-volatile. Carbine does not persist in the environment as it degrades very rapidly in soil through microbial activity. Consequently, there is very little risk of groundwater contamination. Carbine demonstrates superb safety to: mammals, honeybees, aquatic organisms, fish and birds. In all cases, Carbine is classified as “practically non-toxic.”

Change to the ideal pest control method. Change to Carbine.

If you're looking for the ideal integrated pest control program, it has to include Carbine. It stops the feeding of piercing, sucking insects, such as plant bugs and aphids. And it does it with virtually no risk to beneficial insects and mites. It also features a low use rate, excellent environmental and toxicological profiles.



*Compare feeding damage. Top leaf untreated.
Bottom leaf treated with Carbine.*

Carbine™ insecticide has an excellent formulation that is easy to use.

Carbine™ formulation is a 50 WG (50% a.i., wt/wt basis) that dissolves rapidly in water. Plus, it comes in convenient 4 x 3.5 lb. jug packaging that's easy to handle and easy to use.

Use Recommendations

Pests	Ounces Carbine™ 50WG/Acre	Comments
Tarnished Plant Bug <i>(Lygus lineolarus)</i>	1.7 – 2.8	Begin applications as populations reach economic thresholds according to local economic guidelines. The low rate can be used early season for low pest densities or when tank mixing with other products registered for target insect control. Use the high rate for large pest populations, dense foliage, and longer residual. Rapidly growing cotton may need retreatment.
Western Plant Bug <i>(Lygus hesperus)</i>		
Cotton Fleahopper <i>(Pseudatomoscelis seriatus)</i>		
Aphids	1.4 – 2.8	

- Thorough spray coverage of plant foliage is essential for optimal control
- Use a minimum of 10 gallons per acre by ground and 3 gallons per acre by air
- Finished spray volumes should be increased under extreme pest populations or dense plant foliage
- One container of Carbine 50WG will treat 20 acres at 2.8 ounces per acre

For more information on how to include Carbine in your ideal pest control program, contact your FMC Star Retailer today.



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